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71615263
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Technical Information
RID14

8-channel field indicator with FOUNDATION Fieldbus™ or PROFIBUS® PA protocol



Field indicator for easy integration into existing fieldbus systems

Application

- Field indicator with 8 input channels and FOUNDATION Fieldbus™ or PROFIBUS® PA protocol for displaying process values and calculated values
- Also optionally available for Ex d applications
- On-site display of process parameters in fieldbus systems

Your benefits

- Bright, backlit LC display with bar graph, diagnostic symbols and plain text field
- Listener mode for up to 8 input channels or digital status
- Eight channels displayed via function block interconnection in the case of FOUNDATION Fieldbus™
- Safe operation in hazardous areas thanks to international approvals
  - FM IS, NI
  - CSA IS, NI
  - ATEX Ex nA, Ex ic
  - ATEX/IECEx Ex ia, Ex d, Ex tb
- Intrinsically safe mounting in Zone 1 and Zone 2
- Optional aluminum housing or stainless steel housing

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Function and system design

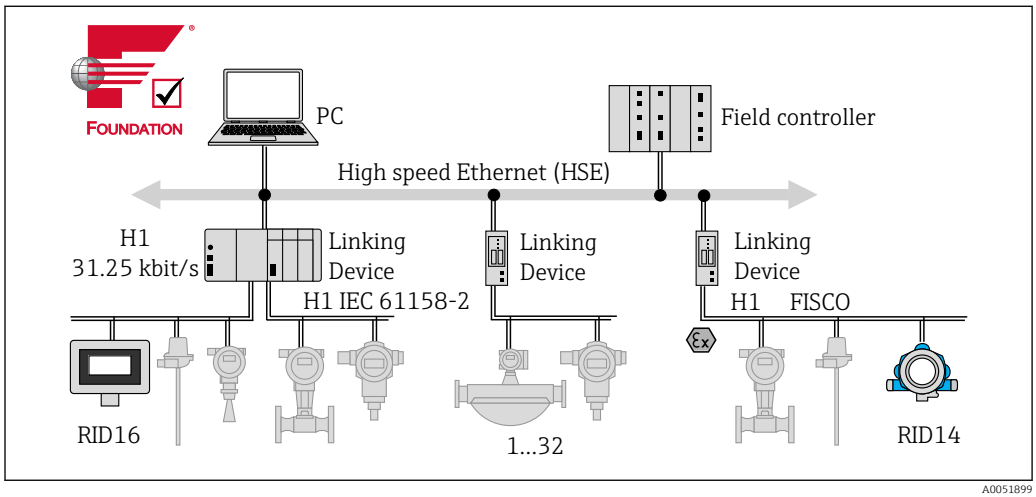
Measuring principle

Backlit display for up to 8 process or calculated values of the fieldbus users connected to the fieldbus system by listener mode or via function block interconnection in the case of FOUNDATION Fieldbus™.

Measuring system

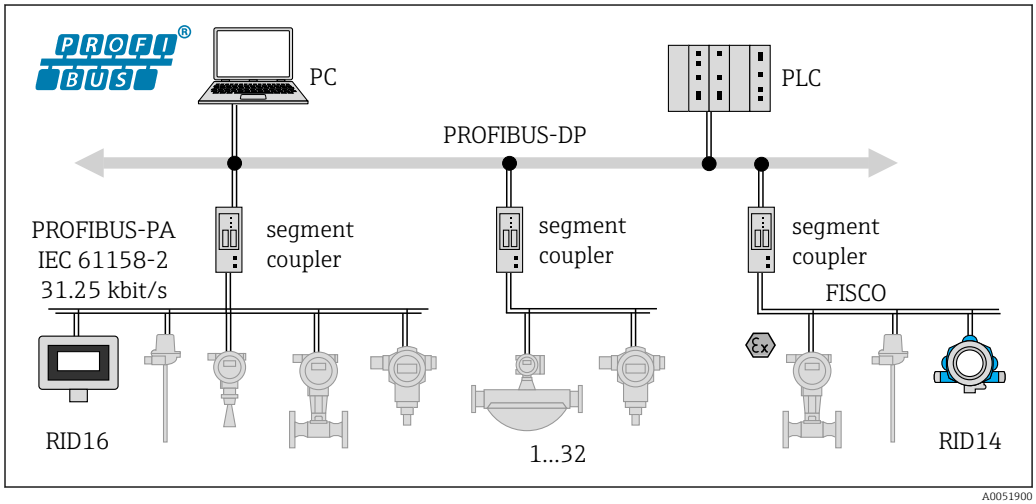
Endress+Hauser has a wide range of innovative products for use with FOUNDATION Fieldbus™ and PROFIBUS® PA protocol. Together with the sensors and transmitters, the indicators form a complete measuring point for a wide range of applications in industrial environments.

Device architecture



1 *System integration via FOUNDATION Fieldbus™*

PC Visualization and monitoring e.g. P View, FieldCare and diagnostic software
HSE High Speed Ethernet (100 Mbit/s)
H1 FOUNDATION Fieldbus-H1
1...3 Up to 32 devices per segment
2



2 *System integration via PROFIBUS® PA*

PC Visualization and monitoring e.g. P View, FieldCare and diagnostic software
1...3 Up to 32 devices per segment
2

The 8-channel indicator displays the measured values, calculated values and status information of the fieldbus users of a fieldbus network. The device listens to the configured fieldbus addresses and

displays their values in listener mode. In addition, the FOUNDATION Fieldbus™ indicator can also display values available on the bus via function block interconnection.

Separate settings can be made for each channel. The analog values of the bus user to be displayed are shown as a five-digit number, digital values in plain text (ON/OFF, OPEN/CLOSE, number values). The process value status is indicated by icons or as plain text in the measured value display. Plain text display enables the display of alphanumeric character combinations, such as the TAG. For trend analysis, in addition to indicating measured values, the display also has a bar graph with indicators for overranging and underranging, which can be scaled independently of the display value.

The device is powered by the fieldbus and can be used in hazardous areas up to a temperature class of T6.

Communication

Failure information

Status message as per the fieldbus specification.

Switch-on delay

8 s

FOUNDATION Fieldbus™

- FOUNDATION Fieldbus™ H1, IEC 61158-2
- FDE (Fault Disconnection Electronic) = 0 mA
- Data transmission rate, supported baudrate: 31.25 kBit/s
- Signal encoding = Manchester II
- LAS (Link Active Scheduler), LM (Link Master) function is supported: Therefore, the indicator can assume the function of a Link Active Scheduler (LAS) if the current Link Master (LM) is no longer available. The device is supplied as a BASIC device. To use the device as an LAS, this must be defined in the distributed control system and activated by downloading the configuration to the device.
- According to IEC 60079-27, FISCO/FNICO

PROFIBUS® PA

- PROFIBUS® PA in accordance with EN 50170 Volume 2, IEC 61158-2 (MBP)
- FDE (Fault Disconnection Electronic) = 0 mA
- Data transmission rate, supported baudrate: 31.25 kBit/s
- Signal encoding = Manchester II
- Connection values in accordance with IEC 60079-11 FISCO, Entity

Protocol-specific data

FOUNDATION Fieldbus™

Basic data

Device type	10CF (hex)
Device revision	02 (hex)
Node address	Default: 247
ITK Version	6.1.2
ITK Certification Driver No.	IT108100
Link Master (LAS) capable	Yes
Choice of Link Master / Basic Device	Yes; factory setting: Basic Device
Number of VCRs	44
Number of link objects in VFD	50

Virtual communication relationships (VCRs)

Permanent entries	1
Client VCRs	0
Server VCRs	10
Source VCRs	43

Sink VCRs	0
Subscriber VCRs	43
Publisher VCRs	43

Link settings

Slot time	4
Min. Inter PDU delay	10
Max. response delay	28

Blocks

Block description	Block index	Permanent	Block execution time	Block category
Resource	400	YES		Extended
Display Transducer	500	YES		Manufacturer-specific
Advanced Diagnostic	600	YES		Manufacturer-specific
PID	1100	NO	30 ms	Standard
Input Selector 1	1200	NO	30 ms	Standard
Input Selector 2	1300	NO	30 ms	Standard
Arithmetic	1500	NO	30 ms	Standard
Integrator	1400	NO	30 ms	Standard

Brief block description

Resource Block:

The Resource Block contains all the data that clearly identify and characterize the device. It is an electronic version of a nameplate on the device. In addition to parameters required to operate the device on the fieldbus, the Resource Block makes information available such as the order code, device ID, software revision, order ID etc.

Display Transducer:

The parameters of the "Display" Transducer Block enable the configuration of the display.

Advanced Diagnostic:

All the parameters for self-monitoring and diagnostics are grouped in this Transducer Block.

PID:

This function block contains input channel processing, proportional integral-differential control (PID) and analog output channel processing. The following can be realized: Basic controls, feedforward control, cascade control and cascade control with limiting.

Input Selector (ISEL):

The Input Selector Block enables the selection of up to four inputs and generates an output based on the configured action.

Integrator (INT):

The Integrator Block integrates one or two variables over time. The Block compares the integrated or totalized value to limit values and generates a discrete output signal if the limit value is reached. It can be selected from six integration types.

Arithmetic (ARITH):

The Arithmetic function block permits standard computing operations and compensations. It supports the addition, subtraction, multiplication and division of values. In addition, mean values are calculated and flow values are compensated for (linear, quadratic compensation) in this block.

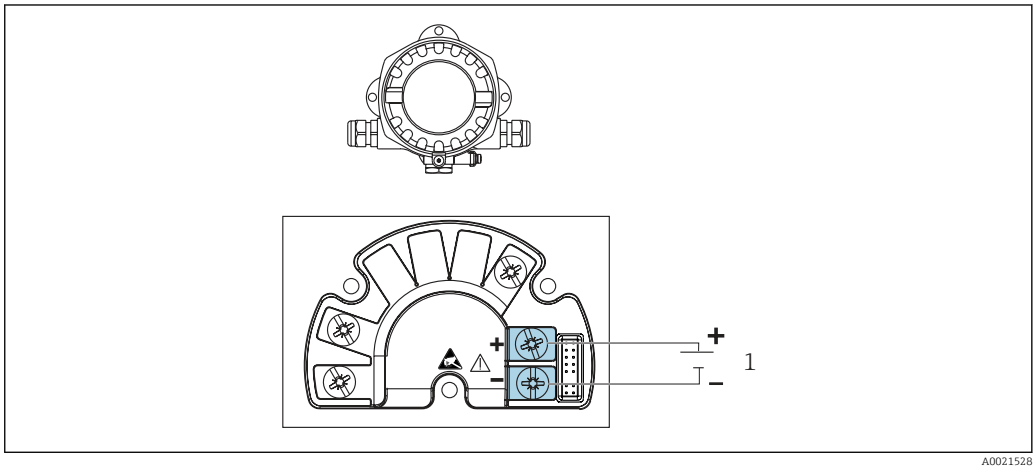
PROFIBUS® PA

Basic data

Indicator for PROFIBUS PA, for use in conjunction with PROFIL 2 and PROFIL 3 (3.0, 3.01 and 3.02) devices	
Device drivers	Where to obtain the device drivers: FieldCare/DTM: www.endress.com/download → product root RID14 or RID16 → search area "Software" → "Drivers"
Write protection	Write protection activated by hardware setting (DIP switch)

Power supply

Terminal assignment



3 Terminal assignment of the field indicator

1 Fieldbus connection

Supply voltage

The power is supplied via the fieldbus.

U = 9 to 32 V_{DC}, polarity-independent (max. voltage U_b = 35 V).

Mains voltage filter

50/60 Hz

Current consumption

≤ 11 mA

Cable entry

The following cable entries are available:
- NPT1/2 thread
- M20 thread
- G1/2 thread

Installation

Orientation

No restrictions, the orientation depends on the readability of the display.

Mounting location

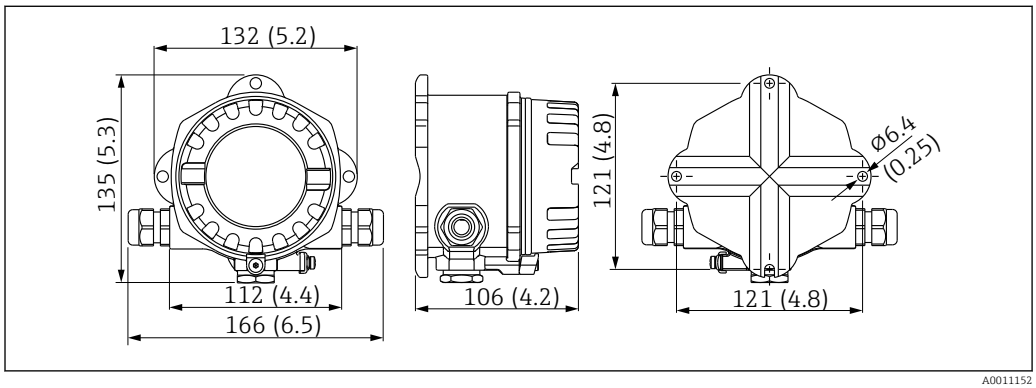
Wall or pipe mounting (see "Accessories" → 9)

Environment

Ambient temperature range	−40 to +80 °C (−40 to +176 °F) The display may react slowly at temperatures < −20 °C (−4 °F). At temperatures < −30 °C (−22 °F) the readability of the display can no longer be guaranteed.
Storage temperature	−40 to +80 °C (−40 to +176 °F)
Altitude	Up to 2 000 m (6 561.7 ft) above sea level
Climate class	As per IEC 60654-1, Class C
Humidity	▪ Condensation permitted as per IEC 60 068-2-33 ▪ Max. rel. humidity: 95% as per IEC 60068-2-30
Degree of protection	IP67. NEMA 4X.
Shock and vibration resistance	10 to 2 000 Hz at 5g as per IEC 60 068-2-6
Electromagnetic compatibility (EMC)	**CE conformity** Electromagnetic compatibility in accordance with all the relevant requirements of the IEC/EN 61326 series and NAMUR Recommendation EMC (NE21). For details refer to the EU Declaration of Conformity. Interference immunity as per IEC/EN 61326 series, industrial requirements. Interference emission as per IEC/EN 61326 series, Class B equipment.
Measuring category	Measuring category II as per IEC 61010-1. The measuring category is provided for measuring on power circuits that are directly connected electrically with the low-voltage network.
Overvoltage category	Overvoltage category II
Pollution degree	Pollution degree 2

Mechanical construction

Design, dimensions



4 *Dimensions of the field indicator in mm (in)*

- Die-cast aluminum housing for general applications, or optional stainless steel housing
- Electronics compartment and connection compartment in single-chamber housing
- Display attachable in 90° stages

Weight

- Aluminum housing
  Approx. 1.6 kg (3.5 lb)
- Stainless steel housing
  Approx. 4.2 kg (9.3 lb)

Materials

Housing	Nameplate
Die-cast aluminum AlSi10Mg/AlSi12Mg with powder coating on polyester base	Aluminum AlMgl, anodized in black
Stainless steel CF3M (316L)	Stainless steel 1.4404 (AiSi 316L)

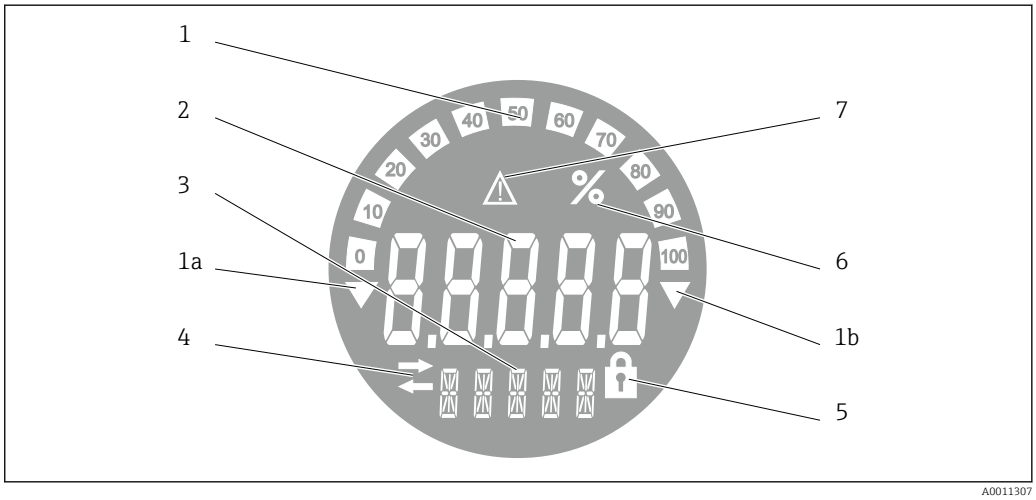
Terminals

Screw terminals for cables up to 2.5 mm^2 (14 AWG) max. plus ferrule

Operability

Local operation

Display elements



5 LC display of the field indicator (backlit, can be plugged in 90° stages)

1 Bar graph display in increments of 10% with indicators for underranging (item 1a) and overranging (item 1b)
2 Measured value display, digit height 20.5 mm (0.8 in), status indication "Bad measured value status"
3 14-segment display for units and messages
4 'Communication' symbol
5 "Configuration locked" symbol
6 Unit "%"
7 "Uncertain measured value status" symbol

Display range
-9999 to +99999

DIP switch

PROFIBUS® PA: Configuration of the bus address of the values displayed (max. 2 if configuring via DIP switches) and the hardware write protection

FOUNDATION Fieldbus™: Configuration of the hardware write protection

Remote operation

FOUNDATION Fieldbus™

FOUNDATION Fieldbus™ functions and device-specific parameters are configured via fieldbus communication. Special configuration systems from different manufacturers are available for this purpose.

Process control systems	Asset management systems
Emerson DeltaV	Endress+Hauser FieldCare/DeviceCare
Rockwell Control Logix/FFLD	National Instruments NI-Configurator (≥ 3.1.1)
Honeywell EPKS	Emerson AMS and Handheld FC375
Yokogawa Centum CS3000	Yokogawa PRM EDD/DTM
ABB Freelance System/800xA	Honeywell FDM
Invensys IA Series	PACTware

PROFIBUS® PA

The parameters can be configured either remotely via the DTM and configuration software or onsite via DIP switches.

Certificates and approvals

Current certificates and approvals for the product are available at www.endress.com on the relevant product page:

1. Select the product using the filters and search field.
2. Open the product page.
3. Select **Downloads**.

Ordering information

Detailed ordering information is available from your nearest sales organization www.addresses.endress.com or in the Product Configurator at www.endress.com:

1. Select the product using the filters and search field.
2. Open the product page.
3. Select **Configuration**.

Product Configurator - the tool for individual product configuration
- Up-to-the-minute configuration data
- Depending on the device: Direct input of measuring point-specific information such as measuring range or operating language
- Automatic verification of exclusion criteria
- Automatic creation of the order code and its breakdown in PDF or Excel output format
- Ability to order directly in the Endress+Hauser Online Shop

Accessories

Various accessories are available for the device, and can be ordered with the device or at a later stage from Endress+Hauser. Detailed information on the order code in question is available from your local Endress+Hauser Sales Center or on the product page of the Endress+Hauser website: www.endress.com

Device-specific accessories

Description	Type
Dummy plug	2 pieces
Cable gland	2x M20 2x adapter M20 to NPT1/2
Pipe mounting kit	Mounting bracket, pipe 2", 316L

Communication-specific accessories

Description	Type
Fieldbus connector for FOUNDATION Fieldbus™:	FF plug 7/8"
Fieldbus connector for PROFIBUS® PA:	▪ PA plug 7/8" ▪ PA M12 plug
Interface cable	Commubox FXA291 incl. FieldCare Device Setup + DTM Library

Supplementary documentation

- System components and data manager - solutions to complete your measuring point: FA00016K/09
- Competence brochure: FOUNDATION Fieldbus - process automation with digital fieldbus technology: CP00003S/04
- Competence brochure: PROFIBUS - process automation with digital fieldbus technology: CP00005S/04
- Operating Instructions for field indicator RID14 with FOUNDATION Fieldbus™ protocol: BA00282R/09
  Operating Instructions for field indicator RID14 with PROFIBUS® PA protocol: BA01267K/09
- Ex-related additional documentation:
  - ATEX/IECEx Ex ia IIC Ga: XA00096R/09
  - ATEX/IECEx Ex d IIC Gb: XA00097R/09
  - ATEX/IECEx Ex tb IIIC Db: XA00098R/09
  - ATEX Ex nA IIC Gc: XA01001K/09
  - ATEX Ex ic IIC Gc: XA01157K/09



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